GATES AND BARRIERS IN THE DELTA

A Report to the State Water Resources Control Board
and
the Delta Stewardship Council

Craig Wilson
Delta Watermaster

Water Code Section 85230(d)

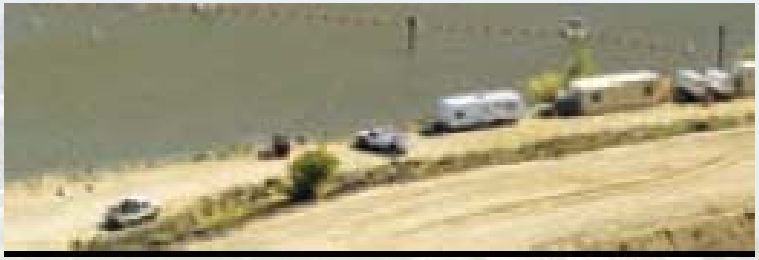
(d) The Delta Watermaster shall submit regular reports to the board and the council including, but not limited to, reports on water rights administration, water quality issues, and conveyance operations.

Delta Hydrodynamics

- The Tides
- River Flows into the Delta
- Exports From the Delta

Issues created by Conveyance Project Operations & Exports

- Water Quality (salinity)
- Fish in Water Supply Corridors



Purpose of Gates and Barriers

- Improve Water Quality
- Keep fish out of Water Supply Corridors

Use of Gates and Barriers in the Delta

- Present Structures
- Reoperation / Improvements to Existing Structures
- Future Projects

Current Gates/Barriers Facilities

- North Delta
  - Suisun Marsh Salinity Control Gates
- Central Delta
  - Delta Cross Channel Gates
- South Delta
  - Temporary Barriers Project

North Delta: Suisun Marsh Gates

Suisun Marsh Gates

- Natural net movement from West to East
- Salinity movement
- Gates: Net movement from East to West
  - Result: Less salinity and water quality improves
  - Boat locks

Central Delta: Delta Cross Channel Gates

Delta Cross Channel Gates

- Main Purpose: A water supply corridor to the Export Pumps
- Unintended Consequence: Fish drawn toward to the Export Pumps
- Closing Gates can keep fish out of Water Supply Corridors

South Delta Barrier Projects

- ORT

- HORB

South Delta Barriers Projects

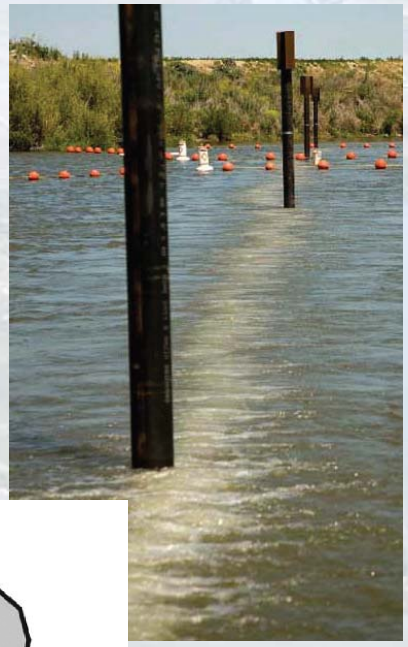
- Temporary Rock Barriers
- Main Purpose: Increase Water Levels
- Ancillary Purposes
  - Improve water quality and circulation
- Operation
  - Height of Barriers: Circulation
  - Opening tide flaps/culverts

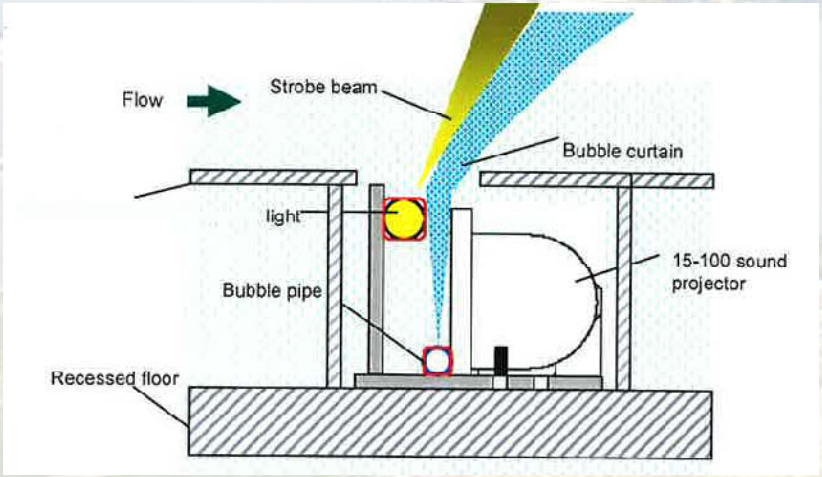
Reoperation/Improvements to Existing Facilities

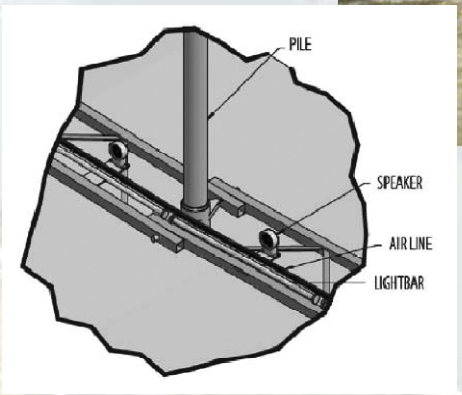
- Delta Cross Channel Gates Improvements
  - Operable and Larger
- South Delta Temporary Barriers
  - Permanent and Operable?
- Predator Concerns

Non-Physical Barriers

- Use of Light, Sound, and Bubbles
- Pilot Projects and Studies
- Predator Concerns







Possible Future Projects

- Franks Tract
  - Water quality and fish corridor
- 2 - Gates Project
- Through Delta Alternatives
- Western Tidal Gates

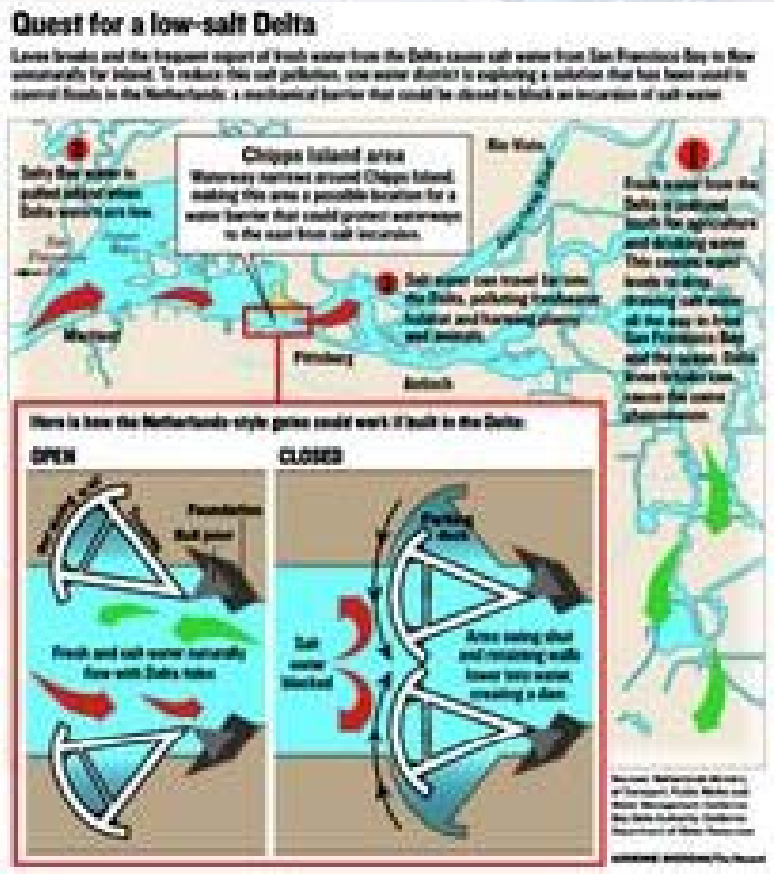
Franks Tract

Figure 1. Franks Tract Project Alternatives

Western Tidal Gates

- Maeslant

- Chipps Island



Western Tidal Gates

- Old Proposal: Rock Barrier
- New Ideas: Operable Gates
- Purpose: Insurance against a catastrophic event
  - Levee Failure (earthquake, flood)
  - Tidal Surge (climate change)
  - Major Flooding
- Only close if needed

Recommendations

- Gates and Barriers have useful purposes
  - Improve water quality
  - Protect fisheries
- Can help regardless of which conveyance options are implemented
- Additional Projects can help
  - Physical
  - Non-physical

Recommendations

- Predation Issue
- Study Western Tidal Gates
- Location Considerations
  - Look for dual purpose projects:
    water quality and fish protection
  - Locations that minimize boating concerns